UNITED STATES
DEPARTMENT OF THE INTERIOR

NATIONAL PARK SERVICE

*ELECTRICITY GENERATED, SOLD, USED, ETC.

Yellowstone ..... National Park for the Month of ..... October, 1928.

	This Month	This Travel Year To Date	This Month Last Year	Last Travel Year To Date	Increase for Travel Year Number	Increase for Travel Year Percent
Current generated, ...		5870.0	31425.0	49920.8	30476.0	3
Sold to park operators, . . .		3445.3	26464.5	2434.3	15121.6	17
Sold to others, ...						
Furnished to other Governmental agencies, ...						
Used by National Park Service,						
Lost in transit, etc., ...						
Total current generated, . .		5870.0	31425.0	49920.8	30476.0	3

Amount receivable from the sale of electricity, ... $ 172.85

Indicated by K. W. H.

10-23

DEPARTMENT OF THE INTERIOR

NATIONAL PARK SERVICE

Yellowstone NATIONAL PARK

FILE NO. 143

MONTHLY REPORTS

November, 1928

NOVEMBER 1928

December 5, 1928.

The Director,
National Park Service,
Washington, D. C.

Dear Mr. Director:

The following is my report on the activities of the National Park Service in Yellowstone National Park during the month of November 1928:

000 - General

Perhaps this news does not fit under "General" but the Director is especially interested in knowing that the belfry on the chapel at Mammoth has been completed and the bell installed, and Judge Meldrum has rung the bell several times to test it out and it has met with his unqualified approval.

Weather conditions have continued ideal during the month of November and permitted the continuation of our roadside cleanup and road construction during the first half of the month. Road construction could continue throughout the month but was curtailed as soon as the new road had been placed in condition for next season's travel. The tourists continued to pass through the park on the way to Idaho and Utah and it was not until November 11 that the road across the Continental Divide between Old Faithful and Thumb was closed on account of deep snow. The last car went across Sylvan Pass the night of November 5. Snow and wind that night blocked the pass.

100 - Administration

120 - Park Inspections by

121 - Acting Superintendent

Assistant Superintendent Daum was acting Superintendent during the month due to Mr. Albright's absence, and he made frequent trips into the park to observe weather conditions and inspect construction and road-

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Perhaps this month does not fit under "General" but the Director is especially interested in knowing that the battery on the chapel at Mammoth has been completed and the bell installed, and Judge Sullivan has rung the bell several times to test it out and it has met with his unqualified approval.

Weather conditions have continued ideal during the month of November and permitted the continuation of our readable cleanup and road construction during the first half of the month. Road construction could continue throughout the month but was curtailed as soon as the new road had been placed in condition for some summer's travel. The Gardiner road had been placed in condition for some summer's travel. The Gardiner continued to pass through the park on the way to Idaho and it was not until November 11 that the road across the Continental Divide between Old Faithful and Thumb was closed on account of deep snow. The last car went across Dyleen Pass the night of November 5. Snow and wind that night blocked the pass.

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121 - Acting Superintendent

Assistant Superintendent Hume was acting Superintendent during the month due to Mr. Albright's absence, and he made frequent trips into the park to observe weather conditions and inspect construction and road-

side cleanup work. He made final inspections on contract work under the supervision of the B. P. R. on the Cub Creek section of the Sylvan Pass project, of the Gibbon Canyon section of the Norris-Madison Junction project and of Section A, West Gallatin project. Due to lack of funds, very little construction was carried on during the month and all work was discontinued in plenty of time to escape the bad weather. On the 24th he made a trip down the Gardiner canyon observing game conditions, especially a band of 50 mountain sheep and several bands of antelope. On the 28th he made a trip to the Buffalo Ranch to observe the separation of the herd to provide animals to fulfill the contract for slaughtering which was started in December.

150 - Equipment and Supplies:

No new equipment was received during the month and the storehouse force was occupied mainly with laying in the season's supply of forage and fuel, which consisted of about 300 tons of hay, 300 tons of oats, 50 cords of wood and 650 tons of coal. All but 100 tons of coal were placed in the storehouse during the month. This work has necessitated the keeping on of from 4 to 6 trucks and the necessary drivers and swampers.

170 - Plans, Maps and Surveys

The Resident Engineer and Assistant Resident Engineer continued on the working up of estimates on the various surveys made during the summer and incidental office work necessary from time to time in preparing plans and estimates. It was necessary to maintain a small survey crew during the construction of the Mammoth-Norris road but this crew was discontinued on the 15th.

180 - Circulars, bulletins, etc.

Copies of circulars issued during the month are attached hereto.

200 - Maintenance, Improvements and New Construction

210 - Maintenance

No maintenance of roads was done this month.

220 - Improvements

Carpenter Shop: The Carpenter Foreman and crew continued the work of remodeling the old storehouse into quarters and practically completed the remodeling of the stone building formerly used by troop horseshoers into a blacksmith shop and the removal of the equipment from the old blacksmith shop into the new building, besides the incidental repairs necessary on the various buildings.

Electrical Department: The usual maintenance of the electrical system was carried on during the month. Some attention was paid to calibrating the turbine in the power plant which will be repaired this winter. The telephone lines were changed over to the ground circuit during the month and placed in shape for winter.

Plumbing Department: This department was occupied with the usual maintenance of the water and sewer system and the necessary replacement of worn-out fixtures in the various buildings.

Garage: Only minor repair work was performed by the garage employees until the middle of the month when various employees came back from leave, at which time the regular winter overhauling of equipment was started and at the end of the month practically 5 trucks had been overhauled. Some work was necessary, of course, to keep our fleet of freight trucks in operation during the month, as from 4 to 6 trucks were operated throughout the month.

Paint Shop: The Master Painter and helper continued the remodeling of the storehouse, finished repainting the interior of the old messhouse and did the usual jobs of glazing.

230 - New Construction - Roads

Mammoth-Norris: With the additional funds secured to place this project in shape for winter, work continued until the 15th, at which time we had roughed in the road from Norris to 17-mile post, a distance of 3 miles, and had placed it in shape for next spring's travel. We had also accomplished much of the clean-up of the roadsides which unsightly condition has caused much unfavorable comment during the past few years. Final inspections were made upon the following projects and approved for acceptance by the Park Service: Norris-Madison Junction, Cub Creek section of the East Entrance road, Section A of the West Gallatin.

New Construction - Buildings: No work was done on new buildings this month except a few days' labor necessary to complete the mess house and bunkhouse at Norris Junction and the hauling out of the materials for the checking station at the East Entrance and the new bunkhouse at Tower Falls.

240 - Improvement of Approaches to the Park

Good progress is being made on the Corwin Springs-Gardiner section of the North Entrance approach road. Much additional equipment was placed on the job during the latter part of the month to expedite its completion. Work has not yet started on the bridge across the Yellowstone River at Gardiner. From latest reports from the State Highway Commission a contract will be let this winter or next spring for the construction of the road between Carbella and Chico, thereby eliminating the last bad stretch of road on the way to Livingston.

Fair progress is being made on the road from Hutchings' Ranch up the canyon toward Nebiqon Lake. It is expected this project will be completed early next spring.

No reports have been received relative to the progress of the work along the Shoshone Lake and river on the East Entrance approach road.

2#0 - Landscape Work

The Assistant Landscape Engineer left the park November 3rd for the San Francisco office after accompanying Assistant Superintendent Lewis over the various projects and approving the recommendation for acceptance of the same. Roadside cleanup of the road between Canyon and West Thumb was completed during October, and the crews transferred to the Old Faithful-Madison Junction road where camp was established near Excelsior Basin, and approximately 4 miles of road was cleaned up before work was stopped the 19th. The snow was not heavy at this time but it was found that too much moisture in the ground and the logs being frozen solid required too much unnecessary work to loosen them up and burn them so that in the interest of economy the work was stopped.

The old lunch station near Lake Eleanor was burned down during the early part of November and no longer presents an unsightly appearance to the visiting public on their way through that beautiful country. The entire layout at Norris Junction that has caused so much criticism for years was torn down and the remains burned so that next spring there will be very little, if any, evidence of the former place.

3#0 - Activities of other agencies in the park

3#0 - Donations and accessions of all kinds

Through the aid of Carl Russell, Park Naturalist of Yosemite Park, who is traveling in the East, the following books were added to our library:

"Highways and Byways of the Rocky Mountains," Clifton Johnson.
"A Summer on the Rockies," by Sir Rose L. Price Bart.
"The Out of Door Library" by Hunting.
"Shooting and Fishing in the Rivers, Prairies and Backwoods of North America", Benedict Henry Revoil, Vols. I and II.
"A Short History of the Mississippi Valley," James K. Hosmer.
"The Yellowstone National Park," Hermann Knapt, Jr.
"Through the Yellowstone Park on Horseback," Gingate.
"Pathfinders of the West," Laut.
"Sporting Adventures in the Far West," Murphy.
"Buffalo Bill's Own Story of His Life and Deeds," Col. W. F. Cody.
"Buffalo Land," W. H. Webb.
"Roosevelt in the Bad Lands," Hermann Hagedorn.

400 - Flora, fauna, and natural phenomena

410 - Ranger, naturalist and guide service

Rangers have been primarily engaged in patrols for the protection of wild life and the prevention of trespasses by hunters on park lands; other duties have consisted of predatory animal hunting, observing and reporting weather conditions (variations of temperatures, snow depths, precipitation, etc.) and water gage heights, repairs and maintenance of property and equipment and routine station duties. Special daily mounted patrols were concluded in the Gallatin, Riverside and Thorofare districts on November 15th. The hunting season along the north line will require daily patrols until the close of December 30th. Early patrols of the park boundary will also be required in the Bechler District until the close of December 15th. Mounted patrols were concluded in the Central and Southern areas on November 15th, and in the Riverside, Grayling and Gallatin districts (western area) on November 30th. These districts will hereafter be closed to all but ski and snowshoe transportation for a period of about 6 months. The north side will probably remain open to horse and motor transportation until on or about the close of the year. The supervisory personnel of the Protection Department service have consisted of Chief Ranger Woodring, Assistants Chief Ranger Krinkman, Douglas and Greer, and Acting Assistant Chief Ranger E. E. Ogston, who has recently been placed in charge of the southern supervisory territory, vice Harry J. Lick, promoted to the Superintendency of Mt. McKinley National Park.

420 - Museum Service

Work on the making of a relief map of the Upper Geyser Basin took most of the month for one man. Contours and elevations were secured by the cutting of cardboard which was then aligned and tacked in place. Over this a coating of papier-mache was placed. This will be covered by white lead and the various features painted on at a later date. Considerable work has been done in cataloging and numbering of the sinter and historical specimens at hand; nearly 300 cards are now in the files, giving the data on that number of specimens. Labels for the sinter, igneous rock, and photographic exhibits to be placed in the Old Faithful Museum have been completed and corrected. Over one hundred of them have been sent to the printer, and these will be proof-read in the near future. Considerable work has been done on a filing system for the library, part of which is now on hand, and part of which will be secured at a later date and placed in a room in the large Museum to be built at Mammoth within the next year. A proposed addition to the Mammoth Nature Trail has been gone over and the most suitable route chosen. This addition will be of benefit to those who cannot undertake the present trail for physical reasons. Signs along the trails at Old Faithful and Mammoth have been taken down and stored. A few of them which will need repainting or re-working have been brought to Mammoth and the work will be done on them some time in the future. A study skin of a pigeon-hawk has been prepared. Considerable time has been spent in preparing a list of equipment which will be needed for scientific purposes and will be purchased before July 1st. This list includes equipment for the Old Faithful Museum, as well as laboratory equipment for the Mammoth Museum. This is not a complete list of the equipment needed, but represents those things for which there is a great need at present.

370 - Animals

Wild life and forage conditions are more favorable at this time than at the close of any November during the past 6 years. Forage is more abundant, snow depths and precipitation have been decidedly below normal, and temperatures have been mild. All species of wild life are in excellent condition for the winter season.

Elk: More elk had moved down to the winter range along the Yellowstone and Lamar Rivers at the close of October last year than have appeared this season to the close of November. In the event that weather conditions are normal throughout December there will be very little drift to points outside the park before January 1st. There have been no elk killed along the north line west of Crevice Mountain this season. The season closes on December 20th.

There were no noteworthy counts this season prior to late November, which are noted briefly as follows: Upper Yellowstone District 400, West slope of Cache Creek 300, vicinity of Cooke Ranger Station 23, along Dead Butte Creek and Lamar River, from mouth of Pebble Creek to Buffalo Ranch counts and estimates total about 2,000, along highway from Lamar River Canyon to Junction Butte (Tower Falls-Slough Creek district) 1,000, Hellroaring Slope and lower reaches of Buffalo Plateau, about 1,000, north slope of Garnet Ridge 100, Blacktail district actual count 317, Swan Lake Flats and vicinity 200, and Fountain Flats (Fountain Station to new geyser), actual count 86; total of actual counts and careful estimates secured late in November, 5426. There are several small bands, as usual, along the meadows of the Gibbon and Firehole Rivers. There is a small band in the Grayling Creek district and signs along the Madison indicate that the drift to the Game Preserve north of the park probably does not exceed 500 to date. Observers on hunting areas bordering the park report kills to the close of November as follows: Upper Yellowstone district 45, Sylvan Pass district 20, Upper Slough Creek and Hellroaring 5, Gallatin district 50, and Riverside district 31, total 151, as compared with 147 to the close of November last year, 197 in 1926, 312 in 1925 and 253 in 1924. All reports indicate an unusually large percentage of bulls and a very light percentage of calves. The best reports obtainable from Jackson Hole indicate that between 600 and 800 have been killed in that district this season.

Antelope: The maximum count this season is 350, exclusive of a band of 13 outside the park. We believe that the herd total exceeds 500, but will probably be unable to verify the conclusion until after the close of the hunting season on December 20th, as special duties in connection with the buffalo herd and special daily patrols of the north boundary will require the services of all available men prior to that date. No losses have occurred and herd conditions are excellent.

Sheep: Our only noteworthy count during the month was secured by the Chief Ranger on the 23rd. The band was located on the north slope of Mt. Everts

and consisted of 24 ewes, 13 lambs, 9 fine big rams, 3 medium large, and 1 small. There were only 2 that were apparently diseased; one of the lambs had a bad case of scabies mites infection and a large ram appeared badly afflicted with the hair lung worm infection. We have no counts from other well known sheep districts including Junction Butte, Specimen Ridge, Mt.Norris and Hellroaring Mountain. Rangers report after careful observation that these districts are apparently abandoned this year.

The only losses reported this season consist of 6 killed by hunters in the Sylvan Pass district east of the park.

Deer: Reports from hunting areas bordering the park give the losses this season as follows: Upper Yellowstone District 12, Sylvan Pass District 25, Gardiner District 11, and Crevice District 8, total 56, as compared with 85 at the close of the hunting season last year, 105 in 1926, 67 in 1925, and 56 in 1924. The deer are in excellent condition for the winter.

Moose: Rangers on patrol in the Upper Yellowstone (Thorofare District) report range groups of from 12 to 18 commonly seen; the larges range group observed this season consisted of 32. They were not all in view at one time but were seen at intervals along the meadows for a total distance of 3 miles. The rangers believe there are approximately 450 in the Thorofare District at this time. Isolated counts have been submitted from other localities as follows: Willow Creek district 3, Soda Butte district 9, headqaters of Pebble Creek 1, Buffalo Plateau 4, Tower Falls District 2, Willow Park 4, and Fountain District 2. Twenty-one were killed by hunters this year as compared with 13 to November 30th last year and 36 to November 30th, 1926.

Bears, black and brown: There has been very little property loss, damage or annoyance reported this month. Appearances have been rare since about the 15th, although there were some signs of activity at Old Faithful and Yellowstone Lake stations as late as November 30th. Hunters are reported to have killed a total of 14 this season on areas bordering the park as compared with 16 last year, 23 in 1926 and 8 during the fall season of 1925. The reported losses this season are believed to include the captive bear, Juno, who has been a real attraction at headquarters for about 3 years. He slipped his collar several weeks ago, as he has done on previous occasions, and managed to elude capture although he appeared at the community daily for about 2 weeks. His final disappearance occurred early in the season and tends to confirm the rumor his appearance at a hog ranch near Gardiner from which he never returned.

Bears - grizzly: Only one of this species was reported killed by hunters this season. It was killed in the Thorofare District south of the park.

Buffalo, Lamar River Herd: Most of the herd is now assembled in the vicinity of Buffalo Ranch following a round-up during the last week of the month. Ninety-seven steers were corraled and will be slaughtered early in

December for the market. Mr. W. S. Custer of Missoula, Mont., is the purchaser on terms and conditions authorized and approved by the Director. This disposal of surplus animals will greatly benefit the herd and provide us with a precedent for the future. The annual roundup will occur early in January at which time the calves will be corraled for weaning and a full count of the herd secured and submitted. Herd conditions are excellent at this time.

Buffalo - Cold Creek-Pelican Creek Herd: There is nothing of interest to report at this time.

2-42-64

Predatory Animals: Fifty-three coyotes were killdd during the month. The count previous to November was 81; total this season to date 134, as compared with 119 to November 30th last year, 89 in 1926, 134 in 1925, 87 in 1924 and 53 in 1923.

Buffalo and Other Ranch Operations: Routine fall season work has been in progress at the Buffalo and Slough Creek Ranches consisting principally of the care and keep of horses, property and equipment, and the observation and control of the buffalo herd. All hands assisted daily during the last week of the month with the roundup and corraling of the steers. They will also assist with the slaughter of approximately 100 during an interval of about 10 days. We have had an open season thus far and wild animal feeding will not be necessary at any of the ranches until after the close of the year. There have been no noteworthy activities at the Yancey, Gardiner and Game Preservation Ranches this month. The Park Service and ranger horses, no longer required for use in connection with the winter season work have been assembled for care and feeding at the Game Preservation Ranch; there is a large acreage of good forage available, and feeding will probably not be necessary before late in January.

480 - Natural Phenomena

Mammoth Hot Springs: There has been little change in activity at Mammoth during the past month. If anything, there is more activity, and a greater wealth of color to be observed than on November 1st. White Elephant Back Terrace is no longer deserving of its name, for the recent increase in activity has caused dark-colored algal growths to flourish, thereby destroying the prevailing whiteness of the formation. Old Hymen Terrace has continued its activity throughout the month, with the height of that activity around the third week of the month. The spring just east of Old Hymen Terrace has died down till there is but a small pool of water left at the bottom of its crater. Another small spring has broken out at the east of Liberty Cap, but it is much smaller than the one which was first noticed early in September. Activity and deposition has increased somewhat at the Glass Springs. Narrow Gauge Terrace presented the greatest increase in activity for there are vents, sulfaterias, and springs the entire length of the formation which is less than 100 yards. A count revealed 40 springs throwing water more than an inch above the surface, 140 smaller springs, and 70 sulfaterias and steam vents. The hissing caused by the escape of steam could be heard for 200 yards. No bats were found in the Devils Kitchen, nor were any suffocated birds found in Stygian Caves.

[illegible]

[illegible]

[illegible]

Norris Geyser Basin: The following report is submitted by Ranger Baker on the thermal activities in the three major basins and at the new geyser during November:

The only unusual activity observed was an eruption on November 12 of Ebony Geyser, which was erupting when I drove along the road and continued to erupt 25-30 feet high in a spray-like jet for 2-1/2 minutes, or until I was within 100 feet of it. At the ending of the eruption the water level dropped until no water was visible in the crater. The following geyser activity at Norris is, so far as I know, not in any way unusual or different from that during October. Congress Pool - the water level is still very low and steam is belched forth in great quantities; the growling tendency has continued. Black Growler - the only change here is an increase in surface water visible to about the amount noted in early July. Ledge Geyser - has been playing 50-60 feet on the incline for 6-10 minutes at an uncertain but evidently irregular interval. Constant Geyser - due to no observed activity on several trips over the basin it is judged that this geyser is not at present active. No activity seen in October either. Whirligig has been playing 12-18 feet high for 5-8 minute (intervals) durations with irregular intervals between eruptions. Porcelain Basin - here the many small vents and springs are all very actively steaming or spurting to small heights with an apparent increase in surface water since summer. Minute Man has been erupting at intervals of 2-3-1/2 minutes to heights of 8-12 feet for durations of 10-15 seconds. Vixen playing at irregular intervals, often only a few minutes apart, heights 8-25 feet; eruptions consist of several spurts after which the pool drains into the orifice. Bathtub Spring boiling violently 8-24 inches high most of the time. Emerald Spring boiling 2-3 feet high all or nearly all the time. New Crater Geyser - the south orifice has been playing 12-15 feet above rim and the north orifice only 1-3 feet above rim at intervals of about 7 minutes for durations of 2-3-1/2 minutes. Valentine - not observed in action. Hundred Springs Plain - the springs and small geysers here have not shown any important or unusual activity.

Lower Geyser Basin: Kaleidoscope Geyser - has been very active, playing 12-15 feet high for 10-15 seconds at intervals of 3-1/2 - 5 minutes. Clepsydra - has been unusually active, having played 15-30 feet high for durations of 30-60 seconds at intervals varying from 3-5 minutes. Fountain Geyser as far as is known has not been active. Fountain Paint Pots have increased their activity to the north and especially on the east side during the last two weeks; at present mud is being thrown 8-10 feet high at times on the east side from two or three small openings; such thrown material covering a small section of the bank and going at times outside the fence. Steady Geyser - in constant eruption. The east orifice playing 25-30 feet high, and the west only 15-20 feet high. Great Fountain - seen in action only once during month, but it is evidently on its regular schedule of about 8 hours. As observed it played 80-100 feet high for 52 minutes. White Dome - playing regularly 17-25 minutes apart to heights of 30-35 feet for durations of 50 seconds to 1-1/2 minutes. Spring Geyser - in action much of the time; intervals vary from 5 - 8-1/2 minutes as observed, heights 8-15 feet and durations from one to several minutes. New Geyser - during

the month some new light has been thrown on the activity of this geyser in that observations showed that intervals were varying from 4½ to 8 hours, which is more than before believed. Durations varied from ½ to nearly six hours. The height has remained 50-60 feet with occasional spurts 80-90 feet high. The wearing away of the side walls of the crater, especially on the south side, is continuing rapidly. Most of the observed intervals were from 6-8 hours. Flood Geyser - in Midway Basin - has been very active lately, erupting 8-10 feet high for durations of 1-2 minutes at irregular intervals of a few hours.

Biscuit Basin: Sapphire Pool - boiling up 3-4 feet at short intervals and erupting 8 feet to 10 feet high at intervals of 10-12 minutes. Jewel Geyser - playing at 6-8 minutes intervals to heights of 10-14 feet and to 3-4 feet heights once or twice during the 6-8 minutes between major eruptions. Avoca (formerly Mustard) - playing 6-7 feet high 1 - 1-1/2 minutes at irregular intervals. Artemisia - playing 30-35 feet high for 6-9 minutes at irregular intervals.

Upper Basin Proper: Riverside - activity as in October - playing 80-100 feet high for 15-20 minutes, with a heavy steam period following and lasting 8-12 minutes, interval 7-8 hours. Ear Pool -erupting 6-10 feet high at irregular intervals. Grotto and Rocket - playing 6-18 feet high for 25 minutes to 2-1/2 hour durations at irregular intervals. Indicator to Grotto and Rocket - this opening, so called by Phillips, is 170 feet nearly due north of Rocket. He reported it as playing to heights of 100 feet at very long intervals. It was reported active three times in the 1928 season, but was not known to have been active last winter at all. It played the first time in the observation of the writer on November 14th and has not been observed in action since then. It consists of an irregular shaped orifice 30 x 15 inches in size which normally acts as a drain for the run-off from Rocket Geyser. The indicator opening, which is 170 feet north of Rocket began to erupt without warning at 9:46 a.m. and stopped suddenly at 10:15 - giving a total duration of 29 minutes; the height was from 20-80 feet with one in every several spurts being 70-80 feet high. A small orifice 50 feet south of this and 120 feet north of Rocket began erupting 5 minutes after the indicator hole, and continued playing 8-20 feet high until 10-15 A.M. Rocket and Grotto began playing at 9:56 A.M., ten minutes after the so-called indicator started playing. Rocket and Grotto played 8-12 feet high for 25 minutes - stopping at 10:21, six minutes after indicator stopped playing. The stopping of the Grotto and Rocket seemed due to the cooling of their underground reservoir water supply through the draining of water from the pool the indicator was playing in, into its orifice when it stopped playing. While it played a pool 70 x 30 feet was backed up in the run, and as soon as it stopped this water began draining into the orifice from which it had played, taking 12 minutes to completely drain said pool. Giant is known to have played only once during the month, on November 15th, which would give it a 31-day interval from October 14th when it was reported as having erupted last. The eruption lasted from 4:26 p.m. until 5:35, giving a 69-minute duration; the height (maximum) was 200 feet. Oblong - playing 20-26 feet high for 4½-6 minutes at about 10 hour intervals. Daisy - has been playing at intervals of 82-98 minutes, for durations of 2½-4 minutes, to heights of 50-75 feet. Spouter - playing 3-18 feet high for long durations at irregular intervals. Cliff (Spring) Geyser -erupted for the second time observed this

fall on November 13th, 14 days after its eruption on October 30th. The eruption started at 2:15 p.m. and lasted until 5:45 p.m., giving a duration of 3-1/2 hours. The maximum height obtained was 40-50 feet as before, and the eruption was in all ways similar to that on October 30th. Castle erupting 40-60 feet high for 22-30 minutes at irregular intervals, usually once every day. Grand - erupting at 12-15 hour intervals to 150-160 feet high for 24-29 minute durations. Sawmill - playing from 15-30 feet high for irregular but long periods at frequent but irregular intervals. Lion playing several times daily to heights of 40-45 feet for durations about 3 minutes. Beehive erupted only once during month - on November 11th - at 12:30 A.M. The eruption lasted 6 minutes and its maximum height was 140 feet. Old Faithful - playing at intervals varying from 54-62 minutes, but averaging about 56 minutes all month. This means that the interval plus the duration of eruption is averaging a little under one hour, thus from the time one eruption starts until the next starts has just been under or at 60 minutes most of the month. Heights have been 120-155 feet and durations 3 - 3-3/4 minutes. During November Lioness, Giantess and Vault have so far as known been inactive.

500 - Use of Park Facilities by the Public

510 - Increase or decrease of travel

Travel conditions were unusually favorable throughout the month. Tourists are known to have made the Loop trip (via Old Faithful, Thumb, Lake, Canyon and Norris) as late as November 11th. Travel between the north and west gates with side trips to Canyon, Lake and Old Faithful have been made without serious difficulty at all times during the month. A car proceeded from Mammoth Hot Springs to Yellowstone Lake and return on December 2nd. The Riverside rangers traveled by car from West Yellowstone to Old Faithful and return on December 1st, and auto travel occurred between West Yellowstone, Gallatin Station and Bozeman, Montana, on December 1st. All approach roads to the park, with the exception of the approach to the south gateway, were open to auto travel on December 1st. These conditions have induced considerably more than the average travel during November. The entrance travel as observed and noted by rangers at the north and west gateways is reported as follows:

North -	Cars 186,	visitors	546
West -	" 121,	"	361
Total	Cars 307,	"	907

The preseason travel to November 30th this year consists of 2647 visitors traveling in 938 cars as compared with 1842 visitors traveling in 655 cars last year and 1203 visitors in 441 cars at the close of November 1926.

520 - General Weather Conditions

TEMPERATURE: Mean 29.0, normal 29.3. The highest was 53° on the 12th, the lowest zero on the 18th.

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PRECIPITATION: Total 0.59 inch, normal 1.44 inches. Snowfall total 8.0 inches, normal 11.0 inches. Greatest snowfall in 24 hours 3.1 inches on the 26th and 27th. Average depth on ground at end of the month, 1.8 inches.

SUNSHINE: Percentage of possible 42, normal 45%. About 50 percent more cloudy days than normally. Days clear 6, partly cloudy 6, cloudy 18, with 0.01 inch, or more, precipitation 8.

WIND: The wind movement was somewhat less than normal. Average velocity, 6.6 miles per hour. Prevailing direction southwest. Maximum velocity 32 miles per hour from the southwest on the 9th.

SNOW DEPTHS: Comparative figures for 1926, 1927 and 1928 are submitted as follows:

STATION	1926	1927	1928
	Inches	Inches	Inches
Crevice	16	18	6
Canyon	24	24	12
Gallatin	14	9	6
Hellroaring	2	13	4
Lake	14	20	9
Mammoth	Trace	3	2
Riverside	12	15	10
Snake River	16	20	22
Sylvan Pass	26	23	10
Cooke	18	26	12
Tower Falls	4	14	4
Upper Slough Creek	14	23	9

The depths at other points are as follows: Old Faithful 10 to 12 inches, Norris 10, Seven Mile Post north of Snake River Station 30, Sportsman Lake 18, and maximum depths in Gibbon Canyon and on the Norris-Canyon Divide 14. The average depth along the highway between Mammoth Hot Springs and Buffalo Ranch was approximately 5 inches at the close of the month.

900 - Miscellaneous

Post Office: There is nothing to report in the post office activities beyond the usual winter work.

Church Services: No Sunday services were held during the month of November. English Lutheran services were held in the Lodge Room by Rev. Webster H. Clement, of Livingston, Mont., on Tuesday evening, November 6th.

[illegible]

[illegible]

[illegible]

As reported in the first paragraph of this report the new bell was installed in the Chapel and rung for the first time by Judge Meldrum, whose donations assisted largely in its purchase in August 1924. This 414# bell cost, including freight charges from St. Louis, Mo., a total of $187.10, is cast from best quality of copper and tin, and is guaranteed against breakage for 15 years from date of purchase, by the manufacturers, St. Louis Bell Foundry.

Hospital and Medical Service: Resident Physician Dr. Howard C. Anderson left the park en route to Pomona, Calif., where he is locating. Dr. Frank C. Grace of Minnesota has been selected by Dr. Windsor to succeed Dr. Anderson. His appointment is effective December 1st, 1928.

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Very truly yours,

M. F. Dunn
Acting Superintendent.

10-157

UNITED STATES
DEPARTMENT OF THE INTERIOR
NATIONAL PARK SERVICE

TRAVEL REPORT

[illegible] National Park for the Month of [illegible], 1928

	This Month	This Travel Year To Date	This Month Last Year	Last Travel Year To Date	Increase for Travel Year	
					Number	Percent
RIVATE TRANSPORTATION:						
ars first entry, ...	307	899	103	655	244	37
ars reentry, ...		36				
otorcycles, ...		3				
Total motor vehicles, ...	307	938	103	655	283	43
ersons entering via motor ehicles, ...	907	2647	317	1842	805	44
ersons entering via other rivate transportation, ...	907	2647	317	1842	805	44
Total persons entering via private transportation, . . .						
THER TRANSPORTATION:						
ersons entering via stages, .						
ersons entering via trains, .						
ersons entering otherwise, .						
Total other transportation, .						
GRAND TOTAL ALL VISITORS, . .	907	2647	317	1842	805	44

	This Year	Last Year	Increase	
			Number	Percent
utomobiles in public camps during month, ...				
ampers in public camps during month, ...				

UNITED STATES
DEPARTMENT OF THE INTERIOR
NATIONAL PARK SERVICE

TRAVEL REPORT

[illegible] National Park for the Month of [illegible], 1940

	This Month	This Travel Year To Date	This Month Last Year	Last Travel Year To Date	Increase for Travel Year Number	Increase for Travel Year Percent
PRIVATE TRANSPORTATION:						
[illegible] first entry, ...	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible] reentry, ...		[illegible]				
[illegible]otorcycles, ...		[illegible]				
Total motor vehicles, . .	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]rsons entering via motor [illegible]hicles, ...	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]rsons entering via other [illegible]ate transportation, . . .	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
Total persons entering via private transportation, . . .						
[illegible]CE TRANSPORTATION:						
[illegible]rsons entering via stages,						
[illegible]rsons entering via trains,						
[illegible]rsons entering otherwise,						
Total other transportation						
[illegible]ANDS TOTAL ALL VISITORS,	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]

	This Year	Last Year	Increase Number	Increase Percent
[illegible]cilities in public camps during month,				

UNITED STATES

DEPARTMENT OF THE INTERIOR

NATIONAL PARK SERVICE

STATUS OF PERSONNEL

YELLOWSTONE National Park for the Month of FEBRUARY 1928

	This Month	This Month Last Year
umber of employees beginning of month	70	64
umber of additions.	0	5
Total	70	69
umber of separations.	2	2
umber of employees close of month . .	68	67
umber of promotions during month. . .	0	0
ggregate amount of annual leave taken	147	83½
ggregate amount of sick leave taken .	10	1
ggregate amount of leave without pay.	11	43

UNITED STATES

DEPARTMENT OF THE INTERIOR

NATIONAL PARK SERVICE

STATUS OF PERSONNEL

	This month	Fiscal year
Number of employees beginning of month	70	64
Number of additions	1	3
Total	71	67
Number of separations	2	2
Number of employees close of month	69	67
Number of promotions during month	3	0
Aggregate amount of annual leave taken	[illegible]	[illegible]
Aggregate amount of sick leave taken	[illegible]	1
Aggregate amount of leave without pay	11	43

10-160

UNITED STATES

DEPARTMENT OF THE INTERIOR

NATIONAL PARK SERVICE

REPORT OF PARK REVENUES

[redacted] National Park for the Month of [redacted], 1928

	This Year	Last Year
Park revenue on hand beginning of month,	None	None
Received,	$ 1,387.72	$3,514.58
Total,	$ 1,387.72	$3,514.58
Remitted,	$ 1,387.72	$3,514.58
On hand close of month,	None	None

Park revenues received this year to date, $ 153,286.63

Park revenues received last year to date, $ 132,490.51

Increase, $ 10,796.12

Percent of increase, 8

UNITED STATES

DEPARTMENT OF THE INTERIOR

NATIONAL PARK SERVICE

REPORT OF PARK REVENUES

[illegible] National Park for the Month of [illegible]

	This Year	Last Year
Park revenue on hand beginning of month		
Received		
Total		
Remitted		
On hand close of month		

Park revenues received this year to date	
Park revenues received last year to date	
Increase	
Percent of increase	

O-162

UNITED STATES
DEPARTMENT OF THE INTERIOR
NATIONAL PARK SERVICE

REPORT OF TELEPHONE AND TELEGRAPH BUSINESS

YELLOWSTONE National Park for the Month of NOVEMBER, 1928

	This Month	This Month Last Year	Increase	Percent Increase
LOCAL BUSINESS				
Miles of circuit maintained,	498	462	36	.078
No. of telephones connected,	151	146	5	.035
No. of measured service calls,				
No. of other local calls,				
Total No. of local calls,	4658	6320	-1662	-.27
Peak load in calls per day,	254	296	- 42	-.14
Receipts from measured service calls,				
" " coin boxes,				
" " telephone rental,				
TOTAL RECEIPTS				
LONG DISTANCE BUSINESS				
No. Outbound calls,	53	94	-41	-.44
No. Inbound calls,	70	116	-46	-.40
TOTAL LONG DISTANCE CALLS				
Peak load in calls per day,	12	14	- 2	-.14
Receipts from Long Distance business,	$	$107.75		
(All of this revenue accrues to the Mountain States Telephone & Telegraph Co.)				
TELEGRAPH BUSINESS				
Messages via Western Union,				
Messages via				
TOTAL MESSAGES				
Receipts from telegraph business,				
No. of money transfer messages,				
" " " " receipts,				
TOTAL RECEIPTS TELEPHONE & TELEGRAPH DEPTS-				

UNITED STATES
DEPARTMENT OF THE INTERIOR
NATIONAL PARK SERVICE

REPORT OF TELEPHONE AND TELEGRAPH BUSINESS

National Park for the Month of

	This Month	This Month Last Year	Increase	Percent Increase
LOCAL BUSINESS				
Miles of circuit maintained,	[illegible]	[illegible]	[illegible]	[illegible]
No. of telephones connected,	151	146	5	[illegible]
No. of measured service calls,				
No. of other local calls,				
Total No. of local calls,	4658	[illegible]	[illegible]	[illegible]
Peak load in calls per day,	254	245	[illegible]	[illegible]
Receipts from measured service calls,				
" " " coin boxes,				
" " telephone rental,				
TOTAL RECEIPTS				
LONG DISTANCE BUSINESS				
No. Outbound calls,	[illegible]	[illegible]	[illegible]	[illegible]
No. Inbound calls,	[illegible]	[illegible]	[illegible]	[illegible]
TOTAL LONG DISTANCE CALLS				
Peak load in calls per day,	12	14	- 2	-14
Receipts from Long Distance business,				
TELEGRAPH BUSINESS				
Messages via Western Union,				
Messages via				
TOTAL MESSAGES				
Receipts from telegraph business,				
No. of money transfer messages,				
" " " receipts,				
TOTAL RECEIPTS TELEPHONE & TELEGRAPH DEPTS-				

10-163

UNITED STATES

DEPARTMENT OF THE INTERIOR

NATIONAL PARK SERVICE

*ELECTRICITY GENERATED, SOLD, USED, ETC.

[illegible] National Park for the Month of [illegible], 1928.

	This Month	This Travel Year To Date	This Month Last Year	Last Travel Year To Date	Increase for Travel Year Number	Increase for Travel Year Percent
Current generated, ...	56220.	370470.0	49300.	354080.0	16390.	4.6%
Sold to park operators, . . .	4868.1	93132.6	2229.5	77351.1	15781.5	20.4%
Sold to others, ...						
Furnished to other Governmental agencies, ...						
Used by National Park Service, lost in transit, etc., . . .	51351.9	277337.4	47070.5	276728.9	608.5	0.2%
Total current generated, . .	56220.0	370470.0	49300.0	354080.0	16390.0	4.6%

Amount receivable from the sale of electricity, ... $ 243.40

* Indicated by K. W. H.

UNITED STATES

DEPARTMENT OF THE INTERIOR

NATIONAL PARK SERVICE

"ELECTRICITY GENERATED, SOLD, USED, ETC.

Yellowstone National Park for the Month of September, 1934.

	This Month	This Travel Year To Date	This Month Last Year	Last Travel Year To Date	Increase for Travel Year Number	Increase for Travel Year Percent
Current generated, ...						
Sold to park operators, ...						
Sold to others, ...						
Furnished to other Governmental agencies, ...						
Used by National Park Service, last in transit, etc., . . .						
Total current generated, . . .						

Amount receivable from the sale of electricity, ... $ xxxxx

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Indicated by K. W. H.

Department of the Interior
National Park Service
Yellowstone National Park
Yellowstone Park, Wyoming.

November ~~October~~ 7, 1928.

CIRCULAR NO. 23.

Effective immediately, and until further notice, Park Ranger Edward E. Ogston (Position No. 54) is hereby designated Acting Assistant Chief Ranger of Yellowstone National Park and will temporarily fill the vacancy created by the promotion of Assistant Chief Ranger Harry J. Liek (Position No. 50) to the superintendency of Mt. McKinley National Park. Mr. Ogston is tentatively placed in charge of the Southern District and will move immediately to the Lake Station to take over his new duties.

For the present we will not appoint anyone to act as predatory animal hunter, vice Ranger Ogston, but this work will be carried on by rangers in the Northern District designated by the Chief Ranger.

M. F. Daum
Acting Superintendent

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